What is claimed is:

1. An isolated PBR-associated protein (PAP) DNA fragment or any portion thereof.

2. An isolated and purified DNA fragment which encodes a PBR-associated protein.

3. An isolated and purified DNA fragment which encodes a peptide of PBR-associated protein, said DNA fragment comprising a sequence specified in any of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, and SEQ ID NO:5, or polynucleotide fragment of said sequence comprising at least 30 nucleotides.

4. An isolated and purified DNA fragment which encodes a peptide of PBR-associated protein, said DNA fragment comprising a sequence specified in Genbank Accession no. AF022770, or GenBank Accession no. AF020338, or a polynucleotide fragment of said sequence comprising at least 30 nucleotides.

5. An isolated and purified PAP7 DNA fragment according to claim 2 which encodes 463 amino acids of PAP7 or a natural variant or synthetic variant thereof encoding PAP7, or a peptide fragment thereof comprising at least 10 amino acids.

6. An isolated and purified PAP8 DNA fragment according to claim 2 which encodes 190 amino acids of PAP8 or a natural variant or synthetic variant thereof encoding PAP8, or a peptide fragment thereof comprising at least 10 amino acids.

7. An isolated and purified PAP15 DNA fragment according to claim 2 which encodes 164 amino acids of PAP15 or a natural variant or synthetic variant thereof encoding PAP15, or a peptide fragment thereof comprising at least 10 amino acids.

8. An isolated and purified PAP20 DNA fragment according to claim 2 which encodes 196 amino acids of PAP20 or a natural variant or synthetic variant

thereof encoding PAP20, or a peptide fragment thereof comprising at least 10 amino acids.

9. A recombinant DNA construct comprising:

(i) a vector, and

(ii) the PAP DNA fragment of claim 1.

10. A recombinant DNA construct comprising:

(i) a vector, and

(ii) the PAP DNA fragment of claim 3.

11. A recombinant DNA construct according to claim 10, wherein said vector is an expression vector.

12. The recombinant DNA construct according to claim 10, wherein said vector is a prokaryotic vector.

13. The recombinant DNA construct according to claim 10, wherein said vector is a eukaryotic vector.

14. A host cell transformed with a recombinant DNA construct according to claim 10.

15. A host cell according to claim 14, wherein said cell is prokaryotic.

16. A host cell according to claim 14, wherein said cell is eukaryotic.

17. A method for producing PAP peptide which comprises culturing the cells according to either claim 15 or 16, under conditions such that said DNA fragment is expressed and said PAP peptide is thereby produced.

18. An isolated recombinant PAP produced by the method of claim 17.

19. A PAP7 polypeptide comprising the amino acid sequence specified in SEQ ID NO:7 or a portion thereof of at least 5 amino acids.

20. A PAP8 polypeptide comprising the amino acid sequence specified in SEQ ID NO:8 or a portion thereof of at least 5 amino acids.

21. A PAP15 polypeptide comprising the amino acid sequence specified in SEQ ID NO:9 or a portion thereof of at least 5 amino acids.

22. A PAP20 polypeptide comprising the amino acid sequence specified in SEQ ID NO:10 or a portion thereof of at least 5 amino acids.

23. A method for detecting a PAP in a sample chosen from the group consisting of: PAP7 , PAP8, PAP15, PAP20, said method comprising

(i) contacting said sample with antibodies which recognize said PAP; and

(ii) detecting the presence or absence of a complex formed between PAP and antibodies specific therefor.

24. A method for detecting a PBR-associated protein, said method comprising the two hybrid assay.

25. An antibody to a peptide having the amino acid sequence specified in SEQ ID NO:6, 7, 8 and 9, or any portion thereof.

26. A PAP7 antibody to a peptide comprising the amino acid sequence specified in SEQ ID NO:11.

27. A method for detecting agents or drugs which reduce or eliminate PAP activity, said method comprising:

(i) delivering a recombinant DNA construct according to claim 10 into a cell such that PAP is produced in said cell;

(ii) adding at least one drug or agent to said cell alone or in combination; and,

(iii) detecting PAP activity in said cell in the presence of said agent or drug and comparing it to a control which did not receive said drug or agent wherein a decrease in PAP activity as compared to control indicates an drug or agent which reduces or eliminates PAP activity.

28. A method for detecting agents or drugs which promote PAP activity, said method comprising:

(i) delivering a recombinant DNA construct according to claim 10 into a cell such that PAP is produced in said cell;

(ii) adding at least one drug or agent to said cell alone or in combination; and,

(iii) detecting whether or not said drug or agent stimulates PAP activity by measuring PAP acitivity in said cell and comparing it to a control which did not receive said drug or agent wherein an increase in the activity of said PAP in said cell as compared to control indicates a stimulatory drug or agent.

29. An agent or drug capable of inhibiting PAP activity.

30. An agent or drug capable of promoting PAP activity.

31. A therapeutic compound comprising said agent or drug according to claim 29 for use in a disease wherein a decrease or elimination of PAP activity is beneficial.

32. A therapeutic compound comprising said agent or drug according to claim 30 for use in a disease wherein an increase o PAP activity is beneficial.

33. A method for detecting at least one PAP selected from the group consisting of PAP7, PAP8, PAP15, and PAP20 in a sample using the polymerase chain reaction.

34. A diagnostic kit for detecting RNA/cDNA of at least one PAP chosen from the group consisting of PAP7, PAP8, PAP15 and PAP20, in a sample comprising primers or oligonucleotides specific for said PAP RNA or cDNA suitable for hybridization to PAP RNA or cDNA and/or amplification of PAP sequences and suitable ancillary reagents.

35. A method for increasing a PAP selected from the group consisting of PAP3, PAP7, PAP8, PAP15 and PAP20 in a cell by introducing into said cell a PAP nucleic acid encoding said PAP such that said nucleic acid is expressed and PAP is produced in said cell.

36. A therapeutic method for the treatment or amelioration of diseases resulting from an increase in cell proliferation, said method comprising providing to an individual in need of such treatment an effective amount of an agent or drug which reduces or eliminates PAP expression or function in a pharmaceutically acceptable diluent.

37. The method of claim 36 wherein said disease is cancer.

38. A therapeutic method for the treatment or amelioration of conditions resulting from abnormal cholesterol level, said method comprising providing to an individual in need of such treatment an effective amount of an agent or drug which reduces or eliminates PAP expression or function in a pharmaceutically acceptable diluent.

39. The method of claim 38 wherein said condition is selected from the group consisting of: cancer, neurodegenerative disorders, developmental disorders, stress, and stroke.

40. A method for modulating PBR activity, function or targeting in a cell, said method comprising increasing or decreasing level of PAP in said cell.

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